

Notice of Allowability

Application No.

09/849,833

Examiner

Matthew J. Sked

Applicant(s)

BRILL ET AL.

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 08/19/05.
2. ☒ The allowed claim(s) is/are 1-3, 5-9, 11-15 and 18-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

W. R. YOUNG
PRIMARY EXAMINER

DETAILED ACTION

Response to Amendment

1. Claims 1 and 8 have been amended to include previously indicated allowable subject matter; these claims are now allowable over the prior art.
2. Claims 4, 10, 16 and 17 have been canceled.
3. Claims 18-20 have been newly added.

EXAMINER'S AMENDMENT

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Theodore Magee on 11/03/05.

The application has been amended as follows:

In claim 18, lines 7-8, change "comparing the first meaning set to the second meaning set to generate a score;" to --comparing the first meaning set to the second meaning set to generate a first score;--.

In claim 18, lines 16-17, change "using the score to determine how to modify the first natural language unit," to --using the first score to determine how to modify the first natural language unit.--.

In claim 19, replace the claim with --The method of claim 18 wherein using the first score to determine how to modify the first natural language unit comprises comparing the first score to the second score and modifying the first natural language unit based on the difference between the first score and the second score to produce a modified natural language unit.--.

Allowable Subject Matter

5. Claims 1-3, 5-9, 11-15 and 18-20 are allowed.
6. The following is an examiner's statement of reasons for allowance: Claim 1 recites the combination of training a natural language unit comprising generating a first meaning set from a first corpus using a first natural language unit by performing a syntactic parse on the first corpus and performing a semantic interpretation of each parse, generating a second meaning set from a second corpus using a second natural language unit, comparing the first meaning set to the second meaning set to generate a score and using the score to determine how to modify the first natural language unit.

Brown teaches a method of training a natural language unit comprising:

generating a first meaning set from a first corpus using a first natural language unit (the first natural language unit takes an input of a corpus (corpus 1 and corpus 2) and creates a translation model from their alignments and uses this model to generate a meaning set (target structures) from the source text, Fig. 46, Fig. 7, elements 702 and 706, and col. 9, lines 46-53);

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performing a syntactic parse on a first corpus to produce a set of syntactic parses (structures are parse trees, col. 37, lines 2-4).

generating a second meaning set from a second corpus using a second natural language unit (generates source structures from the source text, Fig. 7, element 701 and col. 10, lines 45-49);

comparing the first meaning set to the second meaning set to generate a score (aligns the source and target structures and calculates a probability score of each alignment, Fig. 24 and col. 37, line 38 to col. 38, line 1); and

the score indicates a performance of the first natural language unit (the score is an indication of the probability the target structure is a correct translation hence an indication of the robustness of the translation model, col. 37, line 38 to col. 38, line 1).

Baker teaches a system that uses a second natural language unit to further train a first natural language unit by generating a score from two meaning sets and using this score to adapt the first natural language unit (combiner generates a combined score between real-time recognizer's candidates and the offline recognizer's candidates and offline transcriptionist uses the scores to correct recognition errors and these corrections are used to train or adapt the offline recognizer or the real-time recognizer, col. 8, lines 39-50, col. 8, lines 57-60 and col. 9, lines 18-23).

None of the prior art on record teaches performing a semantic interpretation of each syntactic parse to produce a meaning set. It would not have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Brown and Baker to arrive at the applicant's invention.

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7. Claim 8 teaches the combination of a computer readable medium performing the steps for training a natural language unit comprising: converting a corpus of sentences into two meaning sets using two natural language units, comparing the meanings sets to evaluate the performance of one of the natural language units, modifying one of the natural language units, converting at least part of the corpus using the modified natural language unit to obtain a modified meaning set and compare the modified meaning set to another meaning set to evaluate the performance of the natural language unit.

Brown teaches a computer-readable medium having computer-executable instructions, comprising:

converting a corpus of sentences into at least two meaning sets using at least two different natural language units (the first natural language unit creates a translation model from alignments of two corpora and uses this model to generate a meaning set (target structures) from the source text and a second natural language unit generates source structures from the source text, Fig. 46, Fig. 7, elements 701, 702 and 706, col. 9, lines 46-53 and col. 10, lines 45-49); and

comparing the meaning sets to evaluate the performance of one or more of the at least two natural language units (aligns the source and target structures and calculates a probability score of each alignment, the score is an indication of the probability the target structure is a correct translation hence an indication of the robustness of the translation model, Fig. 24, col. 37, line 38 to col. 38, line 1).

None of the prior art on record teaches generating another meaning set from the first corpus using the first natural language unit and comparing this meaning set to the

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second meaning set. It would not have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Brown and Baker to arrive at the applicant's invention.

8. Claim 18 recites the combination of training a natural language unit comprising generating a first meaning set from a first corpus using a first natural language unit by performing a syntactic parse on the first corpus and performing a semantic interpretation of each parse, generating a second meaning set from a second corpus using a second natural language unit, comparing the first meaning set to the second meaning set to generate a first score, changing at least one component of the first natural language unit, generating a third meaning set from the first corpus using the modified natural language unit, comparing the third meaning set to the second meaning set to generate a second score, using the first score to determine how to modify the first natural language unit.

Brown teaches a computer-readable medium having computer-executable instructions, comprising:

converting a corpus of sentences into at least two meaning sets using at least two different natural language units (the first natural language unit creates a translation model from alignments of two corpora and uses this model to generate a meaning set (target structures) from the source text and a second natural language unit generates source structures from the source text, Fig. 46, Fig. 7, elements 701, 702 and 706, col. 9, lines 46-53 and col. 10, lines 45-49); and

comparing the meaning sets to evaluate the performance of one or more of the at least two natural language units (aligns the source and target structures and calculates a probability score of each alignment, the score is an indication of the probability the target structure is a correct translation hence an indication of the robustness of the translation model, Fig. 24, col. 37, line 38 to col. 38, line 1).

None of the prior art on record teaches generating another meaning set from the first corpus using the first natural language unit and comparing this meaning set to the second meaning set. It would not have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Brown and Baker to arrive at the applicant's invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

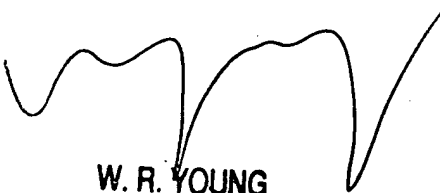
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Sked whose telephone number is (571) 272-7627. The examiner can normally be reached on Mon-Fri (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MS
11/03/05



W. R. YOUNG
PRIMARY EXAMINER